Life on the Wire

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Table of Contents

• What is ART?
• Anatomy
• Who has done it?
• Types
• What are the benefits?
• Proposal
Intro to Aerial Ropeway Transportation

WHAT IS ART?
Aerial Ropeway Transportation

If you have been to a ski resort, you have likely used this form of transit. Typically referred to as cable cars, ART system are suspended “motor-less, engine-less cabins” (Alshalalalfah). Though left to the realm of the recreational world, companies like the gondola project are putting ARTs into cities across the globe.
Of the typical ART system

ANATOMY
Carriers
The structural and mechanical assemblage in which passengers are transported. (Alshalalfah)
Not to be confused with the passenger carriages.

Drivers
Propulsion system of the ART system normally held in the towers.

Ropes
The “R” of ART systems, which typically serve 1 of 2 or both functions.
Haulage: move
Track: hold/suspend
**Terminals**
Where passenger are dropped off, get on, or change cars in an ART system.

**Storage facilities**
Where vehicles go at the end of the line, typically for seasonal vehicles, or maintenance. Some carriages can be detached from the rope and stored off sight.

**Terminals**
Support structures that hold the ropes and house guides which keep the carriages from hitting each other. (Alshalalfah)
People who’ve given it a shot.

WHO’S DONE IT?
Historically

Ropeways have their origin in ancient times and have taken different forms, were used in mining, agriculture, and warfare. Consistently, they have been divided into 2 groups monocable and bicablel for the transportation of goods and people. They are first noted in Asian countries like China, India and Japan, starting with crude harnesses moving onto baskets for riding. By the middle ages there emerge reports and references to ropeways in culture and industry (typically mining). By the 17th century they began to take on more sophisticated designs. Major changes came in the 1850’s when detachable cars came to be and the lines could move via steam or electricity. The rise of the automobile, and interstate systems lead to their current obsolesce. (Aerial Ropeways)
Poma Group

An international organization based in France that specializes in all manners of cable transport, even those outside the realm of ART. They are a group focused on research and diverse projects. They are responsible for the indoor ski range in Dubai and the Eye in London. Their ART projects are primarily Monocable systems with 2 terminals. They work primarily with ski-resorts, but they also work in industrial transportation.
Cable Car Consultants

The planning front bringing ART to countries all over the world. Who have worked in collaboration with the previously mentioned Poma Group. Their designs work with moving people around cities. Though they are primarily Monocable they have rail projects and are beginning to develop Tricable systems.
Of ART Systems

TYPES
MDG’s

Monocable detachable gondolas move passengers in a moving loop, driven by a bull-wheel in the terminal, pulled by the figure.

BDG’s

Bicable detachable gondolas move in a similar manner to the MDG’s, but use separate ropes one track (or support), the other a circulation loop (or driving rope).

“Illustrations of gondola systems: (a) monocable detachable gondola; (b) bicable detachable gondola” (Alshalalfah)
**Aerial Tramways**

Two passenger cabins sharing a rope system comprised of two ropes, one that pulls while the other supports and guides.

**Dual-haul aerial tramways**

A new form of ART that improves “upon some of the limits” traditionally faced by aerial tramways such as independent engines and cables, with wider guiding cables that go all the way to the other terminal. This also allows for higher transport capacity and easier maintenance and evacuation. (Alshalalfah)
Tricable Detachable Gondola Systems are truly state of the ART, combining the best of MDGs and Aerial tramways. It uses a multi-rope, dual function with detachable cabin circuits in terminals, which allows more cabins. TDG’s can actually be used as upgrades and replacements for existing aerial tramway systems. Their diverse cable system also allows them to move greater distances with fewer towers than other ARTs.
And how ARTs compare to other methods.

**WHAT ARE THE BENEFITS?**
Safety

Most ART providers have protocols of slowing rotations, or stopping the system after a certain time. Phone access also allows them to send client warnings, but TDGs are the safest and most stable of all ARTs. However, being a relatively obscure and unregulated form of transit, ARTs are similar in nature to the auto industry in the sense that there is a diversity of (in this case safety) features among different companies and product lines. That being said the fact that ARTs clear the ground keeps issues like flooding less of a concern. Issues like wind can be problematic, but the presence of guide/haulage cables are designed to mitigate or reduce the impact of wind.

“Illustration of the TDG motor and emergency equipment” (Alshalalfah)
Finance

According to the gondolaproject.com “[t]here is no good “rule of thumb” for costing a cable transit system”, but just like in the safety tab it should be mentioned that the TDG, which can be expensive at first, has the ability to have individual cars maintained and replaced.

One strategy noted the Alshalalfah article is the flexible deployment strategy in which the terminals adjust deployments and carriage sizes in consideration of time, season and year. Another is the flexibility of location and design in which terminals end in subway stations, street car terminals and even pedestrian bridges.

As per construction and maintenance little to no resources were found addressing those costs.
Worldly impact

As previously mentioned ART’s particularly TDG’s can cross geographic barriers that would require much more construction for a road, or rail. They can also feed easily into other modes and nodes of transportation. (Alshalalfah)

Where a rail line may cause congestion for road traffic, ART’s float above the street, requiring only installation of towers which would in the long-term, require guards. As the carriages are suspended from and moved by the ropes, they produce no greenhouse gases, and minimal noise. There is also noting of a reduction in crime from areas passed by ARTs. (Alshalalfah)
For the City of Houston

PROPOSAL
**Keep the system in cores**

I hope for at least the initial instillation to connect the major cultural, government and financial centers with interstate-based stations for the outskirts and suburban areas. Such as shown on the image on the right. Around the interstate-based stations would be a parking lot so that people can get back in their cars after the fact. Major areas would include the museum district, Galleria, various blocks downtown and of course all government buildings. Long distance systems will likely use TDG’s. The route shown is more of a proposal, basing stations in areas already use to high traffic. These routes are not necessarily a finite plan, but rather the best proposed route for a grantee of travel in the visible destinations other stops and destinations could not be shown.
Use incentive for compliance

Just as shown in the photo to the right, some buildings can have stops built into them or even go right through them. One could sell the idea by extending tax-breaks to those affected and claiming that the station would bring more people to a location allowing for more clients to an area.
Information Sources


Cable Car Consultants “Past Work.” cable-car.net. Web. 11 Apr. 2015


Image Sources


Jizushan, Yunnan Province, China. Digital image. Cable-car.net/. Web. 14 Apr. 2015


